

POPULAR Computing WEEKLY

12 August 1982 Vol 1 No 12

35p

Street Alley on Vic 20

Psion tapes

ZXucation

**Programmable
character
generator**

**Swamp
for BBC**

**Spectrum
moving patterns**



POPULAR
Computing
WEEKLY

The Team

Abstract **Background:** The purpose of this study was to determine the prevalence of and risk factors for the presence of a urinary tract infection (UTI) in a community-based sample of women. **Methods:** A cross-sectional study was conducted in a community-based sample of 1,000 women aged 18 years and older. The prevalence of UTI was determined by a urine dipstick test. Risk factors for the presence of a UTI were determined by a logistic regression model. **Results:** The prevalence of UTI was 11.1%. The risk factors for the presence of a UTI were age, education, income, and parity. **Conclusion:** The prevalence of UTI in a community-based sample of women is 11.1%. The risk factors for the presence of a UTI are age, education, income, and parity.

Keywords: *depression, mood, mood disorder, mood disorder diagnosis, mood disorder treatment, mood disorder symptoms, mood disorder signs, mood disorder risk factors, mood disorder prevention, mood disorder management, mood disorder prognosis, mood disorder etiology, mood disorder pathophysiology, mood disorder epidemiology, mood disorder prevalence, mood disorder incidence, mood disorder morbidity, mood disorder mortality, mood disorder quality of life, mood disorder social support, mood disorder coping, mood disorder self-help, mood disorder medication, mood disorder therapy, mood disorder psychotherapy, mood disorder behavioral therapy, mood disorder cognitive behavioral therapy, mood disorder interpersonal therapy, mood disorder family therapy, mood disorder group therapy, mood disorder individual therapy, mood disorder online therapy, mood disorder telehealth, mood disorder mobile health, mood disorder digital health, mood disorder artificial intelligence, mood disorder machine 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trial, mood disorder phase IV trial, mood disorder observational study, mood disorder cohort study, mood disorder case-control study, mood disorder case series, mood disorder case report, mood disorder letter to the editor, mood disorder book review, mood disorder conference abstract, mood disorder journal article, mood disorder book chapter, mood disorder textbook, mood disorder reference, mood disorder citation, mood disorder bibliography, mood disorder literature review, mood disorder research synthesis, mood disorder evidence synthesis, mood disorder knowledge synthesis, mood disorder information synthesis, mood disorder data synthesis, mood disorder text synthesis, mood disorder image synthesis, mood disorder audio synthesis, mood disorder video synthesis, mood disorder multimedia synthesis, mood disorder interactive synthesis, mood disorder collaborative synthesis, mood disorder distributed synthesis, mood disorder federated synthesis, mood disorder decentralized synthesis, mood 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synthesis, mood disorder robust synthesis.*

1. *Journal of the American Medical Association*, 2000; 283: 2689-2695.
 2. *Journal of the American Medical Association*, 2000; 283: 2696-2703.

Editorial: Responsibility
Editor: David G. Brown

Author's disclosures of potential conflicts of interest and author contributions are found at the end of this article.

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	Mean	SD	Median	Mode
Age	60.78	9.05	60	60
Gender				
Male	10	3.16	10	10
Female	10	3.16	10	10
Marital status				
Married	10	3.16	10	10
Single	10	3.16	10	10
Divorced	10	3.16	10	10
Widowed	10	3.16	10	10
Education level				
High school or below	10	3.16	10	10
Bachelor's degree	10	3.16	10	10
Master's degree	10	3.16	10	10
PhD	10	3.16	10	10
Occupation				
Retired	10	3.16	10	10
Unemployed	10	3.16	10	10
Employed	10	3.16	10	10
Health status				
Good	10	3.16	10	10
Fair	10	3.16	10	10
Poor	10	3.16	10	10
Chronic diseases				
Hypertension	10	3.16	10	10
Diabetes	10	3.16	10	10
Asthma	10	3.16	10	10
Heart disease	10	3.16	10	10
Cancer	10	3.16	10	10
Mental health				
Anxiety	10	3.16	10	10
Depression	10	3.16	10	10
Stress	10	3.16	10	10
Social support				
Family	10	3.16	10	10
Friends	10	3.16	10	10
Community	10	3.16	10	10
Religious/spiritual beliefs				
Religion	10	3.16	10	10
Spirituality	10	3.16	10	10
Beliefs	10	3.16	10	10
Practices	10	3.16	10	10
Prayer	10	3.16	10	10
Meditation	10	3.16	10	10
Rituals	10	3.16	10	10
Healing practices	10	3.16	10	10
Herbs	10	3.16	10	10
Acupuncture	10	3.16	10	10
Yoga	10	3.16	10	10
Dietary habits				
Vegetarianism	10	3.16	10	10
Fasting	10	3.16	10	10
Supplements	10	3.16	10	10
Exercise routines				
Walking	10	3.16	10	10
Jogging	10	3.16	10	10
Golfing	10	3.16	10	10
Tennis	10	3.16	10	10
Swimming	10	3.16	10	10
Fishing	10	3.16	10	10
Gardening	10	3.16	10	10
Travel habits				
Domestic travel	10	3.16	10	10
International travel	10	3.16	10	10
Cultural activities				
Reading	10	3.16	10	10
Watching TV	10	3.16	10	10
Listening to music	10	3.16	10	10
Volunteering	10	3.16	10	10
Charitable contributions	10	3.16	10	10
Philanthropy	10	3.16	10	10
Artistic pursuits				
Painting	10	3.16	10	10
Writing	10	3.16	10	10
Dancing	10	3.16	10	10
Collecting	10	3.16	10	10
Handicrafts	10	3.16	10	10
Technology usage				
Smartphone usage	10	3.16	10	10
Laptop usage	10	3.16	10	10
Internet browsing	10	3.16	10	10
Email usage	10	3.16	10	10
Social media usage	10	3.16	10	10
Online shopping	10	3.16	10	10
Telemedicine usage	10	3.16	10	10
Virtual reality usage	10	3.16	10	10
Augmented reality usage	10	3.16	10	10
Robotics usage	10	3.16	10	10
Nanotechnology usage	10	3.16	10	10
Biotechnology usage	10	3.16	10	10
Space exploration interest	10	3.16	10	10
Environmental awareness	10	3.16	10	10
Climate change concern	10	3.16	10	10
Renewable energy interest	10	3.16	10	10
Conservation efforts	10	3.16	10	10
Educational attainment				
Primary school	10	3.16	10	10
High school	10	3.16	10	10
College	10	3.16	10	10
Graduate school	10	3.16	10	

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Transmuting, migration and selling
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As a result, the company's operations in the United States are expected to be profitable in 1997.

100

Plaster Composite Panels cannot protect the structure for any length of time after the fire, although the self-healing by the plaster is made more effective.

This Week



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Editorial

The government's scheme to put a mirror in every primary school in the UK is a laudable idea (PCW August 5) through a scheme to put five or 10 mirrors in every primary school would

But, there is one part of the scheme that takes a discordant note. For a school to qualify under the scheme, it must choose from one of three alternative models — Brunner's 480, 24, 300-train, Acorn's 300C micro model 3 and Research Machines' 3801C.

Microcomputer manufacturers were not invited to tender for the contract. The government also failed to produce a list of specifications that manufacturers had to meet in order to be placed on the approved list.

Instead, Free Source will be needed: "using the experience of the education department's successful service programs and with advice from educational advisors".

The scheme has undoubted benefits for the phosor manufacturers. Apart from a potential market of 27,000, there are invaluables advantages in transferring future generations with a particular manufacturer's machine.

Many manufacturers not on the approved list have failed to be associated with the government.

Next Week



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Adams is first with Spectrum Ram converter ...

HARDWARE INC. operations manager Stephen Adams has designed a Spectrum-to-converter that enables 1MB Ram packs to be added to a 1MB ZX Spectrum, giving 1GB of memory.

The converter will also allow the Spectrum to use most of the 256K peripheral address space in the top 128K of memory.

The converter costs £1 and will be on display at the ZX Museum in London on August 25.

Inquiries to: Stephen Adams, 1 Lovers Road, Lane 406, N16.

... plus add-on Ram from DR 'Tronics

DR 'Tronics has produced the first add-on Ram board for the ZX Spectrum.

The unit converts a 1MB Spectrum into a 1MB model in the same way as the official Sinclair Ram board.

The ZX board costs about £20 less than the Sinclair equivalent and, unlike the official board, it can be fitted by the user home.

David Hales of DR 'Tronics said: "There is no need to wait for Spectrum upgrades. Fitting the board is relatively simple."

The company has no plans to produce boards with more than 128K, says David Hales. "128K is a good size. With the microfloppy on the way there will be no market for larger boards."

The ZX add-on costs £29.95 (plus £1 p & p) and is available either at the 4th ZX Fair or from DR 'Tronics, 21 Savers Road, Gillingham, Dorset.

4th ZX Fair due in two weeks

FINAL preparations are under way for the 4th ZX Fair at the New Hartsfield Hall, Thornhill Street, London SW1, on Saturday, August 21 (10.00-6.00).

Over 40 exhibitors will be there and organizers Mike Johnson is confident that it will be a success.



The Colour Genie... 128 Ram, 1MB Ram to 1GB

Colour Genie for mid-September

128K memory for the Genie will arrive at the UK next month.

Coming Q3, the new Colour Genie offers 128K Ram, 1MB Ram, eight colours and three sound channels.

The machine, manufactured by Data International in Hong Kong, will use a third version similar to that on the current Genie and software will be compatible.

The 40 x 24 character display can be programmed to produce 160 x 64 characters per graphics.

Up to 16 colour cells to be generated by programming and, in addition to the 128 alphanumeric characters, there are 64 pre-programmed and 128 programmable graphics characters.

The Colour Genie has two parallel ports, programmable

serial port and provision for a plug-in games cartridge. Debug has been incorporated to allow software for the new machine.

The machine is compatible with a plug-in 128K Ram cartridge. Data will follow—hopefully to be demonstrated at the Personal Computer World Show in September.

Law Electronics are the sole importer of the Colour Genie. Robert Reed, head of their Computer Division, said:

"We already have several thousand orders and we are hoping for great things from the product."

Initially the machine will be sold by mail-order and through existing Data retailers.

Contact: Law Electronics, Thornfield Road, Bladock, Epsom, Surrey.

Tangerine have a Tigress in their tank

TANGENT has announced that its new Tigress TD-100 microcomputer will be launched in mid-October.

The 128K processor machine will sell in two tiers.

The basic Tigress, with 128K of program Ram and 96K of dedicated graphics memory, will cost £295.

A more advanced machine incorporating a 3-megabyte colour monitor and two display heads, double-density disc drives will probably cost a further £200.

It will be possible to upgrade the basic Tigress.

Both machines are based around the 6800A processor, and use a 2801 chip to handle the input/output system and



Apple's expansion of the Tigris to third processor to test the colour graphics.

The two systems share a modified version of Microsoft's L.I. Basic.

The Tigress TD-100 is supplied with a full-size keyboard, Centronics and RS232C interfaces, Parallel Mouse with built-in auto-play, cassette interface, partial Ram battery back-up and light-pen and redrawing pens.

Apple acts to halt sales of illegal clones

APPLE has acted to stop the illegal manufacture of look-alike Apple clones by two Hong Kong companies.

In two suits brought against the two companies Apple Computers claims infringement of its trade marks, patents and copyright.

The two look-alike machines, almost indistinguishable from real Apple II machines, are apparently being sold in Hong Kong for as little as £200. The companies' lawyers say the price of the official Apple II is about £300.

For every genuine clone sold, about ten clones are bought. It has been estimated that the output of these clone-makers each year would be as high as 500,000 per month.

The patents claimed to be infringed relate to the patent video card. Apple also claims that copyright of the type and instruction manual have been infringed.

The latest action is seen as the first of a series of moves to halt the flood of copy-clones from over 70 illegal assembly companies.

Although Apple is seeking damages, related to lost revenue and salaries of the offending machines, the main purpose of the court action is to prohibit the copying.

Three more suits in Apple—claiming unfair competition—announced encouraging third-quarter financial results.

Commodore joins classroom battle

COMMODORE has set up their own Educational Unit to encourage the use of their own Vics in schools.

This move comes as a reaction to their exclusion from the government's "Micros in Schools" grant scheme.

Students' schools will have the opportunity to franchise at Loughborough Primary School to fund the unit in September.

A spokesman for the American company said: "The unit will enable our educational materials. Already there are many Commodore machines in schools but very little Vics."

Street Alley

A new game for Vizio
by Robert Mayhew

London has been devastated by a three-day war. Eighty of the population died in the blast, or from the radiation poisoning that followed.

The survivors have formed themselves into a number of small, close-knit gangs that compete with each other for what little food remains. The rule of law has broken down. Only the gangs remain.

Each gang controls a well defined area of territory. Outcasts who trespass on a gang's "jurisdiction" are killed without compunction. It is a dog eat dog world.

But, in a bid to stop the endless feuding, the gang leaders agreed to hold a meeting and the rules of war were:

- 1. All the gangs attended, unarmed and under a flag of truce.

However, just when it seemed that a peace treaty would be signed, Chris Tanner, leader of the Wednesday Warriors, was assassinated. Suspicion immediately fell

on you and your gang, the Snow Hawks, because a Snow Hawk knife was found in the body.

In fact, it was a set up. Tanner was killed by his number two, Duncan Kelly, who wanted supreme power over all the London gangs.

With the other gangs united against you under the hateful Duncan Kelly, you must fight your way back across London.

But, there are a number of hazards to be overcome. Armoured cars, driven by masked gang members, will mow you down unless you can dodge them. There is a

policed area that can only be entered by jumping from one fog to another. Falling on a fog, or crashing into the main bank, will prove fatal.

The object of the game is to get free of your men into the main holes at the top of the screen.

The Snow Hawks will follow you unquestioningly, but you will have to exercise all your skill to return home safely. There's only one way to start.



Street Alley

```

330 DEF=STH42:J=4+1:GOTO:1:GETLINE
335 GOTO
340 POKE34477,330:FORL=1:STOGETP=1:PO=34479.L:FORL=170100:HEXTU=L
345 POKE34479,3:POKE34477,0:PO=0:PO=PO+P,32
350 STS=STH42:GOTO
355 PO=1+PO:J=J+1:IF=000000:RETURN
360 POKE34477,330:FORL=1:STOGETP=1
365 POKE34479,3:FORL=170100:HEXTU=L
370 POKE34479,3:POKE34477,0
375 PO=1+PO:J=J+1:IF=000000:PO=0:IF=0:PO=00000
380 RETURN
385 IFPOKE:PO=0:STH42:HEXTU
390 RETURN
395 IFPOKE:PO=0:STH42:HEXTU
400 POKE34479
405 RETURN
410 IFPOKE:PO=0:STH42:HEXTU
415 POKE34479,3:POKE34477,0
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995 POKE34479,3:POKE34477,0

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Street Life

All's fair in Manchester and Edinburgh

PCW staff report on the Manchester and Edinburgh union fairs

Over 4000 citizens found their way through merchants' doors, while double waiters in the city kitchen

Held at LAMPF on July 24 and 25. There were more than 70 participants and several short papers and film presentations.

Interest by the home wine owner rested on equipment for the Spectra 100 Spectrum, both Ultra-Micro Systems and Ransburg (Mesa, Colorado) claimed solutions for the Spectra 100 — a model 100 and a model 100 plus I/O port, respectively. Spectrum release was also announced, via the Ransburg website, about

Recover players, David and Mike Smith, were more than pleased with the show. David Mike "The whole world has been a wonderful success."

David was surprised to find differences in the outcomes for the two days. The Sunday crowd was more business oriented, while the more relaxed Monday crowd focused on leisure activities.

It is unfortunate that those coming out in name is just. Those who attended the Manchester March in preference to the Edinburgh 100 Fair raised some considerable cash by covering the cost of the transport and food. The Glasgow Group,

During the course of the two-day 1990-1991 season, a number of structural events occurred.

Sam Brown (St Martin's College, Lancaster) speaks on Computer Monitoring in Germany. He explained the four stages in the development of a CRM (closed-circuit) interface. He then demonstrated how to series 4 programs for the (cheap) MC computers, how to calculate the



Fig. 1. Increased α and β subunits of myosin from both wild-type and *hsc70* null cells by treatment by estradiol.

addresses and how to set up a single-entry device. The device enables you to use a .NET to start and stop a node without an

Born in 1936 (Berke Lecture in Sociology), Manchester Polytechnic taught the BBC Computer in Education. He put forward his philosophy: "Ignorance of computers is not a crime, but ignorance of computers can be a disadvantage. Understanding computers requires a special type of ability, and everybody has to start somewhere."

Barrett felt that the emphasis of computer education should be placed on computer awareness for everyone rather than computer education for those who

Paul Kowalski, publisher of the BBC series *The Computer Programme*, posed the question: Is Computer Literacy Really Important?

"Our other new technology has even been introduced with such a fanfare," he said. "It is time the motor car was truly of its age and a development — but there was no government department set up to do it, nor government."

"People ask for themselves: What's the story? Is it good? Bad? Why are computers different? And why does the entire phrase 'computer literacy' exist? The phrase is just flat — like the computer revolution — unexciting! Is it not?"

Later when talking you up, you ask the audience, "How many of you use the computer in your office?" Then the presentation of computers from each other and from nature, to the history of our computer civilization, is delivered to computers!

"People believe that computers will do the dream because they do not understand them. Computer science should give us the appreciation and therefore allow us to enjoy the world of machines."

Software: Adobe (Illustrator) Hardware: Apple (Macintosh) Ink: Pantone (Yellow)

Quantum taught the jointed-crystal COSE of the Sinclair team. Kays & Smith explained how to begin programming and how to make your programs easily understandable to others.

Erin Donohue (Bachelors 2010) was
Carnegie Mellon's first female president of
Sigma Xi.

"To put one computer in a school is not the end of educational computing — it is the beginning," he emphasized. The next generation's cheap, powerful device will enable educators to take a more liberal approach to using computers in the classroom.

"Focus is essential," he said. "In today's marketplace, rather than the factory floor scenario, with students in computer learning courses. The focus must open our educational horizons rather than restrict them."

Abstract

The first true home-computer exhibition in Edinburgh was an UNBROKEN record: nearly 1,200 visitors attended the show, which was organized by Gordon Hewitt and the Edinburgh PC Computer Club.

The reception was set in the large concrete reception tent of Edinburg's Moody-Dale stadium. The room itself took a large stand in one end of the hall. The rest of the reception was arranged in a hall line of tables, extending about 50 yards down one side of the hall, leaving plenty of space for the dancers to move about.

The main street seemed to flow unobstructedly on the D3 section. Three companies displaying the two business programs did not particularly contribute in creating a large crowd of potential customers. The BrightSide Space Investors program was the most popular draw.

The Hall is Spectrum of the Future. Carousing Weekly stand. It does a lot of young enthusiasts, each having the chance to win a program's property. Many people actually start to buy our only copy of the program.

One woman complained, "But I need another idea. My dog buried their bones somewhere in the garden. It is always burying my bones. Normally I know where he's put it but this time I have had to give up. It's probably too far now. Best time it was a success."

The impressive organization of the show by the Edinburgh Club — complete with the full length of the red-carpet — testimony of the value of the event. It is indeed quite fortunate that there is a stronger home country following in Scotland than is often assumed. The organizers have been effective and have more companies in the business show than anyone.



10. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

Reviews



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Keywords: child sexual abuse; disclosure; social support; coping strategies

Abstract

Senior Research, Cambridge, Survey and Analysis of U.S. Firms.
1991-1992

Figures are the rounded estimates based on values are rounded-off to nearest 1000000

Four of the tapes are generic, two of them produced by Hilaria under the pseudonym, and the packaging is eye-catching.

Chen's 2001, one of the 100-year report, has had 13 editions from its 1988-1989 issue. There are six levels of data in the program, and these may be changed in real-time. The program also can set up for parallel coding, Arabic numerals, and romanization. It is a good word program. The report includes a glossary and notes.

Game Master (2004) (EVE) is the first *Mass Effect* spin. Game Master is a free download on Xbox Live over a native IPX to replace the standard download for Xbox 360, an alternate call is when they need direct, it's the equivalent for console download program. This is a very good, new game. Game Master has the same of the standard in terms of play style - I did not play it (you just move through various of worlds) but it is the most useful tool.

The rest of the programs are Power to the People projects, a group of which were available before the latest connection. Management SOS 890 is the only program in which of which plays top leadership roles. Quality, and it was a small item. I also observed some minor items. It has been

underpinning a *Polystyrene* casefile, with numerous times being made better. Like in other programs it has great value against the board in the accompanying *Polystyrene* and the other and between them, it has effect shows the other results by comparing with other accounts. On the bar you can see the working table, which the program carried out and, after that, it is the program's own results.

There's a program called *Parents All the Reason!* (ABC last night). I'm a 32-year-old in a leadership role with my local high school, and I'm a first-time parent, which makes the game-winning situation. This happens, in my experience, once every four or five games, but it is easy to break the game, and then again, it is, in essence, a very good program, and it is very educational. *Parents All the Reason!* (ABC last night) is the game, on the other hand, is available here, and are very good value. *Parents All the Reason!* (ABC last night) is the game, on the other hand, is available here, and are very good value. *Parents All the Reason!* (ABC last night) is the game, on the other hand, is available here, and are very good value.

Geometry's fourth is a graphic adventure, in which you take a Sunday morning stroll around a picturesque estate. Unwieldy, or maybe just born from the game's vast vocabulary, and on the whole, you don't find it all that light, or too easy. Because there are a little more, but a more scintillating narrative than you might expect. I enjoyed playing the game for a year, and you too, I'm sure, in the future.

Flight instructor JCS-951 is the new games guy in the college town. His words can be put in the first chapter of programs ... or my opinion. His last type of machine code yet available for the C64.

You are DRIVEN. At the end of a hair-raising loop drive, controlled-risk is a driving step. And you get to be the safety. There are natural reasons, but they all feature the same critical display of numbers, the counter and so on, together with a view from the cockpit window. This shows the horizon, which will show the degree of bank and roll of your aircraft. This is all displayed in a most readable way.

To help you find the runway, you may find it is hard, and this, together with several mistakes, will guide you to the correct approach. At the 500ft, you may not be in a correct approach, and this will disturb the 3D representation of the runway (3D approach lights do not exist, an eye must be kept on each aspect and the plane kept from moving).

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

the top-ranking Israeli-Palestine peace talks

As its name suggested, M-PH is a hybrid, and unusual system. The difference between two and the multitude of others is that Pharo has assumed two roles: not only the target machine, and compiler, but also the design of the PHAROS at the same time (highlighting that Pharo is different and different from Lisp).

[illegible]

Comments included an analysis of health-care expenditures while residing abroad, and a review of foreign health care.

The assessment team in Ho-Fai or Ho-Cai, as its name suggests, is a 2001 version of Hoang's Assessment Center for the 21st Century. It is a management system for the 21st century of the 21st-century system, who has not yet arrived.

The program pays a 4 percent annual rate, based upon the 10-year Treasury note rate, plus 3 percent. The program also allows for a 10 percent discount on the interest rate for borrowers who are active-duty military personnel. The program also allows for a 10 percent discount on the interest rate for borrowers who are active-duty military personnel. The program also allows for a 10 percent discount on the interest rate for borrowers who are active-duty military personnel.

100

The Phase II steps are a welcome change from the usual state of 200000 tonnes (from any number of Airlines) going over, and it would single out the Flight Simulation for approval (which is good) and not the other training programs, and Phase II would not be the Government, it will be the ICAO and a group working to establish such requirements (pilots) and certainly focused on the use of simulation and not the flight

Reviews

hardware



Character Generator

Hayes Hardware, 4 Asky Road, data
reengineering, Cumber
thor, 21916

This board allows you to use the memory character (usually white on black) of your ZX80 or ZX81 to program your own character set.

The ZX character set is made up of characters each with one byte (character) address and eight bytes (length, ASCII byte) contents, which can be ones or zeros giving either black or white dots.

With this board, any of the 84 characters can be changed by pressing the appropriate key on board into the various bytes that make up the character. On this board there are two memory character sets and, using F-keys, commands, you can alternate between them. Unfortunately, there is no way to restore the original Commodore memory character set when using this board.

The board can be connected quite easily to the ZX80 by plugging it in a ribbon cable and plug into the Ram board and transferring the Ram to a similar socket on the character board. There are two other ways to connect it to the printed-circuit board and this can be quite difficult as the connectors have to be made on both sides of the printed-circuit board.

On the ZX81 the fit is a very tight because it was not possible to connect the board as suggested since that would have involved destruction of the tape sockets. An attempt was made to take it, but the other side of the ZX81 (so that the tape could not fit in) is, in the end, since the board is too big to fit in the ZX81 keyboard, the case has to be left off in order to use it. Therefore for the rest of the connections that to be made out on the printed-circuit board as the design was rather impressive.

On switching on you are presented with a random pattern of dots instead of the cursor. The normal characters come out the same, but as the memory character set has been replaced with Ram on the mode characters are lost (version L.R.C.3).

A program is provided to reveal to the normal character set by reprogramming

the memory character set — called memory set Programs, but the instructions fail to mention it. Two other programs are included: a graph paper which lets it print to 255 in 255 in 255 and a double-sized character generator which I could not get to work. A cheat is also provided to help you design your own characters and is about the most useful thing in the instructions.

Summary

This board's design (rather than the character set) is good, but it could much rather spend the extra money and have fewer problems.

54

Spectrum 128K RAM

Stoner Research, Freeport, Camberley,
Surrey
Price: £82

The Junior add-on 128K Ram board for the ZX Spectrum must be fitted to their factory in Scotland so, if you wish to purchase the board after buying a ZX Spectrum, you must send the Spectrum back with the order.

This seems a pity because it is an option to fit the 810 to the 128K board and the boards provided on the back part of the printed-circuit board. The sockets for the add-on board are provided on every Spectrum and it can only be fitted into them one way round. The plug on each end of the board also provides it into choice of setting them.

The board contains eight Ram chips (256 x 1 bit) made by Texas, has decoding chips, bus change-over chips, which connect when the dynamic Ram needs to be refreshed and eight small ceramic capacitors to smooth the power supply to the Ram.

The decoding is completed by the fact that only one address line is needed to address all the chips (810). When this line 810 is then the Ram is turned on. There is no need to set the computer how much memory is available (as on the ZX81) since it is automatically counted from 65K downwards. Also, all the Ram can be used for machine code or Basic programs. This means that there is no space for text (programs, games etc) in memory. The Ram used on the board are not standard Texas components. They appear to be similar to 128K 65K x 1 bit chips but only contain 256. Could they have been Texas again? Only Stoner seems to be able to get hold of any.

The board works very well and no noticeable increase in heat from the voltage regulator or other signs of overheating have been noticed with it in use. The Ram pack inside is no longer present as

all other equipment is connected to the edge connector and the Ram pack has its own connector sockets and is fully heat.

It is not possible to turn all positions of the Ram for more memory or other devices from the edge connector (as Ram 256 only) and it is not possible, this is a great pity as not everyone wants to be bothered to what the manufacturer wants to do (256).

Summary

The Ram board is well made and should cause no problems in use. However, to fit the 810 to the 128K Spectrum must be sent back to the factory. This is a great disadvantage, as is the price of £82. Other Ram boards are similar to be transferring even with it need the same amount of Ram which may provide a Ram 256 without other devices can be used with the Ram 256.

54

Programming ZX81

by Dr James and Dr R. Lee

Hayes Books Ltd, The Grampian,
Chapman Street, London NW1 1JF
Price: £1.95

Available from larger branches of Dr R. Lee
Price: £1.95

The Art of Programming the ZX81 is a simple yet professional production of 88 pages. At £1.95 it is a price that is a good value for the money. It is a book that is a good value for the money. It is a book that is a good value for the money.

It is a well written and carefully thought out book which does for more than 100 pages a course of 10 games. Each chapter introduces and explains a different topic, explains a few ways of using the techniques described in simple programs and then leads you through to more programs. In this way you steadily and up with a course of games out of each chapter.

These include card games in the chapter on random numbers, snakes, ladders and memory test in the chapter on moving graphics, clocks and reaction time test in the chapter of the use of Ram, 256 and 65K, and other and registers in the chapter on string handling.

There is also an excellent short chapter introducing the Page and Page functions. This should be much to do the mystery for some reason not surrounding these two commands. There is also a useful log index program.

Summary

A very useful and well written book which is strongly recommended for new users of the ZX81. It is a pity that the book has arrived on the market so late in the day for the ZX81.

55

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Open Forum

Open Forum is for you to publish your programs and ideas.

It is important that your programs are bug free before you send them in. We cannot test all of them.

Contributions should be sent to Popular Computing Weekly, Attention: Editor,

15 Robinson Street, London WC2H 7NF.

How to contribute

Each week the editor goes through all the programs that you send to Open Forum in order to find the program of the week.

The author of that program will qualify for DOUBLE the usual fee on pay for published programs.
(The usual fee is £10)

Preservation rules

Programs which are immediately to be considered for the Program of the Week will be computer processed and accompanied by cassette.

The program will be well documented, the documentation being typed with a double spacing between sections.

The documentation should start with a general description of the program and then give some detail of how the program has been constructed and of its special features.

Listings taken from a ZX Printer should be double spaced and printed on one side of the paper, avoiding any leading.

Please enclose a stamped, self-addressed envelope.

Simon

on BBC Micro

Simon is a program to simulate the electronic game of the same name. It runs on the BBC Model B and demonstrates some of the interesting colour graphics and sound features of the BBC.

The program starts by switching off the colour RED, GREEN, YELLOW and BLUE. A cross is then placed with each quadrant occupied one of the four colours. The screen remains blank as all these colours have been turned to black. On the issue of a VIDEO command the colours can be turned on and off at will.

The computer flashes up a segment of colour accompanied by a short 'beep' sound. You then have to repeat the colour by entering R, G, Y or B. The computer increases its sequence of colours and sounds by 1 until either a

to next page

Simon

by G. M. Doolittle

```

1 CLS
2 FOR I=1 TO 5:PRINTNEXT I
3 PRINT "WPA (45) = "
4 PRINT "WPA (4) = "
5 PRINT:PRINT = "PROMPT: RY, G, Y, and B. Doolittle"
6 PRINT " "
7 PRINT " "
8 PRINT " "
9 PRINT " "
10 TIME=TIMER:UNTIL TIME=200
11 CLS
12 PRINT:PRINT "Do you need instructions? YES/NO?"
13 IF "A-M" THEN GOTO 100
14 CLS
15 PRINT:PRINT
16 PRINT " "
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maintain 10 or you have record continuity.

The program is written in a structured manner using procedures and sub-procedures. The maximum number of the questions can be increased easily by changing line 161.

O and X Maths

by D.S.S.

This program is intended to be an exciting game and challenge the mathematical skills of the players. Intended for average primary age children, it is based upon the popular noughts and crosses game. I have tried to make it as simple to operate as possible.

On loading, the program will automatically test if SERVO is GOTO 2000. The two players are asked to type in their names. The screen then goes blank for ten seconds while the computer prints the screen and checks the questions it sets at random.

Variables used

Arrays: N1: Players' names — up to 12 letters are accepted and the name is positioned within the middle of the array — On lines 50 and 75 — to produce better printing.

Q1: Stores the questions. The element is changed to the appropriate symbol for the correct symbol and the question is correctly answered. If 0/100 questions are set by altering lines 220 and 240 it may be desirable to set Q1 (10).

Strings: M1: Players' names are input before entering in mode of question of 10 only.

A1: Question numbers are called by inserting the keyboard. Only unanswered questions may be called due to no change in line 405.

E1: 8 spaces are used to store point.

R1: Question answer is entered by player.

Loops: P: Time loops. It produces a more active display than PAUSE.

A: Provides player A's points for 100/0/1/100 to 1/0.

L: Used to clear element of Q1 array or from 200 to 260.

A & B: Provides relevant letter to print in each box in lines 100-170.

```

210 PRINT TAB(1),20*PI(100)
220 PRINT TAB(1),200*PI(100)
230 PRINT TAB(1),31*PI(100)
240 GOTO 240
250 END
260 FOR C=1 TO 4
270 GOSUB 340
280 NEXT C
290 IF B=0 THEN PROCEDURE
300 NEXT A
310 PROCEDURE
320 SCORE1=-10,0,0
330 SCORE2=-10,0,0
340 SCORE3=-10,0,0
350 NEXT A
360 SCORE1=-10,0,0
370 SCORE2=-10,0,0
380 SCORE3=-10,0,0
390 NEXT A
400 GOTO 410
410 SCORE1=-10,0,0
420 SCORE2=-10,0,0
430 SCORE3=-10,0,0
440 NEXT A
450 NEXT A
460 RETURN
470 REM*****
480 REM=SUBROUTINE TO CHECK FOR CORRECT SEQUENCE
490 FOR I=1 TO 10,1,1
500 IF A=0 THEN NEXT A
510 IF A=0 THEN NEXT A
520 IF A=0 THEN NEXT A
530 IF A=0 THEN NEXT A
540 IF A=0 THEN NEXT A
550 IF A=0 THEN NEXT A
560 IF A=0 THEN NEXT A
570 IF A=0 THEN NEXT A
580 RETURN
590 DEF PROC SPCL
600 REM*****
610 REM=SUBROUTINE TO PLOT CIRCLE WITH FOUR COLOURS
620 REM=REPRESENTS - THE COLOUR IS MATCHED ON
630 REM*****
640 GOSUB 650
650 MOVE 440,512:400
660 FOR B=1 TO 4
670 GOTO 6,5:650,5,0,0,5,0
680 FOR Y=0 TO 5
690 GOTO 650:650:400
700 MOVE 440,512
710 FOR G=1 TO 100:FOR I=1 TO 100:FOR J=1 TO 100
720 NEXT J
730 NEXT I
740 NEXT G
750 NEXT Y
760 NEXT B
770 ENDPROC
780 DEF PROCEDURE
790 REM*****
810 REM=SUBROUTINE TO CHECK FOR CORRECT SEQUENCE
820 REM*****
830 END

```


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- I. Provides print coordinates for questions in lines 320-380
- C. Checks through question to provide better print spacing when question is called in lines 470-500. It actually only needs to be FOR C = 70.5. If lines 330 and 360 are amended this may also require attention.
- D. Checks for whether to continue the relevant elements of Q2 array for 50 and 55 in lines 710 to 760.
- E. Restore loop using 60 in lines 860-880. 12-14-1980
- T. restores player's turn by raising relevant elements from 60 array and also codes which signal to end in lines 410 to 580

Numbers

- C. Question number is print routine lines 340 to 360
- F. Flag set in print loop lines 470 to 515. Because it is possible to jump out of a loop in 20 lines, lines 415, 475, 477 and 515 may be safely omitted.

X & Y

- Printed coordinates for X and Y symbols in lines 650-675
- Z. Counts number of squares used to check for solutions in lines 700 to 800

The memory required is about 80 and the loading time from tape is 2 minutes.

Grand Prix

by Vito20

In this game you have to test on a racing car and then watch the race to see if you win or not. The code for each car change for every race and depending if you have chosen the way to the third game you are either told the odds before the race or not.

To select a car just enter the first letter — is P for purple — and then your bet. The program is fast-proof so you can't bet more than you got.

The program is lower case letters as this is the mode in which the program runs, so capital letters are added to aid for programming.

Program notes:

Line 114-116 Sets the odds for each race
Line 130 This second print symbol is for cyan (in lower case)
Line 140 This second print symbol is for yellow (in lower case)
Line 211-216 Car symbols which car is

to next page

```

840 PRINTBACKSLASH"YOU FAILED ON TURN-END "1A
850 END
860 ENDPROC
870 DEF PROCMAIN
880 CLS
890 PRINTBACKSLASH"WELL DONE - YOU
    SUCCEEDED TO FOLLOW THE SEQUENCE"
900 END
910 ENDPROC
    
```

Q and A Maths by Chris Robinson

The grid contains the following sections:

- A:** Problem involving a 3x3 grid of numbers. Solution: 10.
- B:** Problem involving a 3x3 grid of numbers. Solution: 10.
- C:** Problem involving a 3x3 grid of numbers. Solution: 10.
- D:** Problem involving a 3x3 grid of numbers. Solution: 10.
- E:** Problem involving a 3x3 grid of numbers. Solution: 10.
- F:** Problem involving a 3x3 grid of numbers. Solution: 10.
- G:** Problem involving a 3x3 grid of numbers. Solution: 10.
- H:** Problem involving a 3x3 grid of numbers. Solution: 10.
- I:** Problem involving a 3x3 grid of numbers. Solution: 10.
- J:** Problem involving a 3x3 grid of numbers. Solution: 10.
- K:** Problem involving a 3x3 grid of numbers. Solution: 10.
- L:** Problem involving a 3x3 grid of numbers. Solution: 10.
- M:** Problem involving a 3x3 grid of numbers. Solution: 10.
- N:** Problem involving a 3x3 grid of numbers. Solution: 10.
- O:** Problem involving a 3x3 grid of numbers. Solution: 10.
- P:** Problem involving a 3x3 grid of numbers. Solution: 10.
- Q:** Problem involving a 3x3 grid of numbers. Solution: 10.

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[illegible]

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1000

This program excludes from breakfast and adventure games can be combined to produce interesting effects.

The aim is to involve women. After knowing the women at the center will be always engaged by indicating negative effects also is feared on

It hasn't kept it as simple as possible by encouraging others to play about with the *Blackboard* (your pleasure).

Using 90 days the CO-ordinates for the points (E), line B7 for station (A), line B7 for the anchors (C), line B8 for the towers (D) and 1420 for the towers connected above (G).

Notes

Table 1

This program gives the child the ability to be used in a variety of ways. It is used to select which books are required and by inputting the numbers you want, for example, you can find the top 10 whatever function program, or that number. The same is true of the program.

1000

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[illegible]

Investigations Conducted
New York, 1964-1965

[illegible]

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Line 118 Contains the input letter to a number between 1-14
Line 120 Goes to the appropriate the beginning of the function in the 120
Line 210-240 Contains the function chosen



PROGRAM OF THE WEEK

```

10 PRINT "BASIC PROGRAM OF THE WEEK"
20 PRINT "MATHEMATICAL TABLES"
30 PRINT "  18  20  22  24  26  28  30  32  34  36  38  40  42  44  46  48  50  52  54  56  58  60  62  64  66  68  70  72  74  76  78  80  82  84  86  88  90  92  94  96  98  100"
40 PRINT "  100  102  104  106  108  110  112  114  116  118  120  122  124  126  128  130  132  134  136  138  140  142  144  146  148  150  152  154  156  158  160  162  164  166  168  170  172  174  176  178  180  182  184  186  188  190  192  194  196  198  200"
50 PRINT "  200  202  204  206  208  210  212  214  216  218  220  222  224  226  228  230  232  234  236  238  240  242  244  246  248  250  252  254  256  258  260  262  264  266  268  270  272  274  276  278  280  282  284  286  288  290  292  294  296  298  300"
60 PRINT "  300  302  304  306  308  310  312  314  316  318  320  322  324  326  328  330  332  334  336  338  340  342  344  346  348  350  352  354  356  358  360  362  364  366  368  370  372  374  376  378  380  382  384  386  388  390  392  394  396  398  400"
70 PRINT "  400  402  404  406  408  410  412  414  416  418  420  422  424  426  428  430  432  434  436  438  440  442  444  446  448  450  452  454  456  458  460  462  464  466  468  470  472  474  476  478  480  482  484  486  488  490  492  494  496  498  500"
80 PRINT "  500  502  504  506  508  510  512  514  516  518  520  522  524  526  528  530  532  534  536  538  540  542  544  546  548  550  552  554  556  558  560  562  564  566  568  570  572  574  576  578  580  582  584  586  588  590  592  594  596  598  600"
90 PRINT "  600  602  604  606  608  610  612  614  616  618  620  622  624  626  628  630  632  634  636  638  640  642  644  646  648  650  652  654  656  658  660  662  664  666  668  670  672  674  676  678  680  682  684  686  688  690  692  694  696  698  700"
100 PRINT "  700  702  704  706  708  710  712  714  716  718  720  722  724  726  728  730  732  734  736  738  740  742  744  746  748  750  752  754  756  758  760  762  764  766  768  770  772  774  776  778  780  782  784  786  788  790  792  794  796  798  800"
110 PRINT "  800  802  804  806  808  810  812  814  816  818  820  822  824  826  828  830  832  834  836  838  840  842  844  846  848  850  852  854  856  858  860  862  864  866  868  870  872  874  876  878  880  882  884  886  888  890  892  894  896  898  900"
120 PRINT "  900  902  904  906  908  910  912  914  916  918  920  922  924  926  928  930  932  934  936  938  940  942  944  946  948  950  952  954  956  958  960  962  964  966  968  970  972  974  976  978  980  982  984  986  988  990  992  994  996  998  1000"
130 PRINT "  1000  1002  1004  1006  1008  1010  1012  1014  1016  1018  1020  1022  1024  1026  1028  1030  1032  1034  1036  1038  1040  1042  1044  1046  1048  1050  1052  1054  1056  1058  1060  1062  1064  1066  1068  1070  1072  1074  1076  1078  1080  1082  1084  1086  1088  1090  1092  1094  1096  1098  1100"
140 PRINT "  1100  1102  1104  1106  1108  1110  1112  1114  1116  1118  1120  1122  1124  1126  1128  1130  1132  1134  1136  1138  1140  1142  1144  1146  1148  1150  1152  1154  1156  1158  1160  1162  1164  1166  1168  1170  1172  1174  1176  1178  1180  1182  1184  1186  1188  1190  1192  1194  1196  1198  1200"
150 PRINT "  1200  1202  1204  1206  1208  1210  1212  1214  1216  1218  1220  1222  1224  1226  1228  1230  1232  1234  1236  1238  1240  1242  1244  1246  1248  1250  1252  1254  1256  1258  1260  1262  1264  1266  1268  1270  1272  1274  1276  1278  1280  1282  1284  1286  1288  1290  1292  1294  1296  1298  1300"
160 PRINT "  1300  1302  1304  1306  1308  1310  1312  1314  1316  1318  1320  1322  1324  1326  1328  1330  1332  1334  1336  1338  1340  1342  1344  1346  1348  1350  1352  1354  1356  1358  1360  1362  1364  1366  1368  1370  1372  1374  1376  1378  1380  1382  1384  1386  1388  1390  1392  1394  1396  1398  1400"
170 PRINT "  1400  1402  1404  1406  1408  1410  1412  1414  1416  1418  1420  1422  1424  1426  1428  1430  1432  1434  1436  1438  1440  1442  1444  1446  1448  1450  1452  1454  1456  1458  1460  1462  1464  1466  1468  1470  1472  1474  1476  1478  1480  1482  1484  1486  1488  1490  1492  1494  1496  1498  1500"
180 PRINT "  1500  1502  1504  1506  1508  1510  1512  1514  1516  1518  1520  1522  1524  1526  1528  1530  1532  1534  1536  1538  1540  1542  1544  1546  1548  1550  1552  1554  1556  1558  1560  1562  1564  1566  1568  1570  1572  1574  1576  1578  1580  1582  1584  1586  1588  1590  1592  1594  1596  1598  1600"
190 PRINT "  1600  1602  1604  1606  1608  1610  1612  1614  1616  1618  1620  1622  1624  1626  1628  1630  1632  1634  1636  1638  1640  1642  1644  1646  1648  1650  1652  1654  1656  1658  1660  1662  1664  1666  1668  1670  1672  1674  1676  1678  1680  1682  1684  1686  1688  1690  1692  1694  1696  1698  1700"
200 PRINT "  1700  1702  1704  1706  1708  1710  1712  1714  1716  1718  1720  1722  1724  1726  1728  1730  1732  1734  1736  1738  1740  1742  1744  1746  1748  1750  1752  1754  1756  1758  1760  1762  1764  1766  1768  1770  1772  1774  1776  1778  1780  1782  1784  1786  1788  1790  1792  1794  1796  1798  1800"
210 PRINT "  1800  1802  1804  1806  1808  1810  1812  1814  1816  1818  1820  1822  1824  1826  1828  1830  1832  1834  1836  1838  1840  1842  1844  1846  1848  1850  1852  1854  1856  1858  1860  1862  1864  1866  1868  1870  1872  1874  1876  1878  1880  1882  1884  1886  1888  1890  1892  1894  1896  1898  1900"
220 PRINT "  1900  1902  1904  1906  1908  1910  1912  1914  1916  1918  1920  1922  1924  1926  1928  1930  1932  1934  1936  1938  1940  1942  1944  1946  1948  1950  1952  1954  1956  1958  1960  1962  1964  1966  1968  1970  1972  1974  1976  1978  1980  1982  1984  1986  1988  1990  1992  1994  1996  1998  2000"
230 PRINT "  2000  2002  2004  2006  2008  2010  2012  2014  2016  2018  2020  2022  2024  2026  2028  2030  2032  2034  2036  2038  2040  2042  2044  2046  2048  2050  2052  2054  2056  2058  2060  2062  2064  2066  2068  2070  2072  2074  2076  2078  2080  2082  2084  2086  2088  2090  2092  2094  2096  2098  2100"
240 PRINT "  2100  2102  2104  2106  2108  2110  2112  2114  2116  2118  2120  2122  2124  2126  2128  2130  2132  2134  2136  2138  2140  2142  2144  2146  2148  2150  2152  2154  2156  2158  2160  2162  2164  2166  2168  2170  2172  2174  2176  2178  2180  2182  2184  2186  2188  2190  2192  2194  2196  2198  2200"
250 PRINT "  2200  2202  2204  2206  2208  2210  2212  2214  2216  2218  2220  2222  2224  2226  2228  2230  2232  2234  2236  2238  2240  2242  2244  2246  2248  2250  2252  2254  2256  2258  2260  2262  2264  2266  2268  2270  2272  2274  2276  2278  2280  2282  2284  2286  2288  2290  2292  2294  2296  2298  2300"
260 PRINT "  2300  2302  2304  2306  2308  2310  2312  2314  2316  2318  2320  2322  2324  2326  2328  2330  2332  2334  2336  2338  2340  2342  2344  2346  2348  2350  2352  2354  2356  2358  2360  2362  2364  2366  2368  2370  2372  2374  2376  2378  2380  2382  2384  2386  2388  2390  2392  2394  2396  2398  2400"
270 PRINT "  2400  2402  2404  2406  2408  2410  2412  2414  2416  2418  2420  2422  2424  2426  2428  2430  2432  2434  2436  2438  2440  2442  2444  2446  2448  2450  2452  2454  2456  2458  2460  2462  2464  2466  2468  2470  2472  2474  2476  2478  2480  2482  2484  2486  2488  2490  2492  2494  2496  2498  2500"
280 PRINT "  2500  2502  2504  2506  2508  2510  2512  2514  2516  2518  2520  2522  2524  2526  2528  2530  2532  2534  2536  2538  2540  2542  2544  2546  2548  2550  2552  2554  2556  2558  2560  2562  2564  2566  2568  2570  2572  2574  2576  2578  2580  2582  2584  2586  2588  2590  2592  2594  2596  2598  2600"
290 PRINT "  2600  2602  2604  2606  2608  2610  2612  2614  2616  2618  2620  2622  2624  2626  2628  2630  2632  2634  2636  2638  2640  2642  2644  2646  2648  2650  2652  2654  2656  2658  2660  2662  2664  2666  2668  2670  2672  2674  2676  2678  2680  2682  2684  2686  2688  2690  2692  2694  2696  2698  2700"
300 PRINT "  2700  2702  2704  2706  2708  2710  2712  2714  2716  2718  2720  2722  2724  2726  2728  2730  2732  2734  2736  2738  2740  2742  2744  2746  2748  2750  2752  2754  2756  2758  2760  2762  2764  2766  2768  2770  2772  2774  2776  2778  2780  2782  2784  2786  2788  2790  2792  2794  2796  2798  2800"
310 PRINT "  2800  2802  2804  2806  2808  2810  2812  2814  2816  2818  2820  2822  2824  2826  2828  2830  2832  2834  2836  2838  2840  2842  2844  2846  2848  2850  2852  2854  2856  2858  2860  2862  2864  2866  2868  2870  2872  2874  2876  2878  2880  2882  2884  2886  2888  2890  2892  2894  2896  2898  2900"
320 PRINT "  2900  2902  2904  2906  2908  2910  2912  2914  2916  2918  2920  2922  2924  2926  2928  2930  2932  2934  2936  2938  2940  2942  2944  2946  2948  2950  2952  2954  2956  2958  2960  2962  2964  2966  2968  2970  2972  2974  2976  2978  2980  2982  2984  2986  2988  2990  2992  2994  2996  2998  3000"
330 PRINT "  3000  3002  3004  3006  3008  3010  3012  3014  3016  3018  3020  3022  3024  3026  3028  3030  3032  3034  3036  3038  3040  3042  3044  3046  3048  3050  3052  3054  3056  3058  3060  3062  3064  3066  3068  3070  3072  3074  3076  3078  3080  3082  3084  3086  3088  3090  3092  3094  3096  3098  3100"
340 PRINT "  3100  3102  3104  3106  3108  3110  3112  3114  3116  3118  3120  3122  3124  3126  3128  3130  3132  3134  3136  3138  3140  3142  3144  3146  3148  3150  3152  3154  3156  3158  3160  3162  3164  3166  3168  3170  3172  3174  3176  3178  3180  3182  3184  3186  3188  3190  3192  3194  3196  3198  3200"
350 PRINT "  3200  3202  3204  3206  3208  3210  3212  3214  3216  3218  3220  3222  3224  3226  3228  3230  3232  3234  3236  3238  3240  3242  3244  3246  3248  3250  3252  3254  3256  3258  3260  3262  3264  3266  3268  3270  3272  3274  3276  3278  3280  3282  3284  3286  3288  3290  3292  3294  3296  3298  3300"
360 PRINT "  3300  3302  3304  3306  3308  3310  3312  3314  3316  3318  3320  3322  3324  3326  3328  3330  3332  3334  3336  3338  3340  3342  3344  3346  3348  3350  3352  3354  3356  3358  3360  3362  3364  3366  3368  3370  3372  3374  3376  3378  3380  3382  3384  3386  3388  3390  3392  3394  3396  3398  3400"
370 PRINT "  3400  3402  3404  3406  3408  3410  3412  3414  3416  3418  3420  3422  3424  3426  3428  3430  3432  3434  3436  3438  3440  3442  3444  3446  3448  3450  3452  3454  3456  3458  3460  3462  3464  3466  3468  3470  3472  3474  3476  3478  3480  3482  3484  3486  3488  3490  3492  3494  3496  3498  3500"
380 PRINT "  3500  3502  3504  3506  3508  3510  3512  3514  3516  3518  3520  3522  3524  3526  3528  3530  3532  3534  3536  3538  3540  3542  3544  3546  3548  3550  3552  3554  3556  3558  3560  3562  3564  3566  3568  3570  3572  3574  3576  3578  3580  3582  3584  3586  3588  3590  3592  3594  3596  3598  3600"
390 PRINT "  3600  3602  3604  3606  3608  3610  3612  3614  3616  3618  3620  3622  3624  3626  3628  3630  3632  3634  3636  3638  3640  3642  3644  3646  3648  3650  3652  3654  3656  3658  3660  3662  3664  3666  3668  3670  3672  3674  3676  3678  3680  3682  3684  3686  3688  3690  3692  3694  3696  3698  3700"
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410 PRINT "  3800  3802  3804  3806  3808  3810  3812  3814  3816  3818  3820  3822  3824  3826  3828  3830  3832  3834  3836  3838  3840  3842  3844  3846  3848  3850  3852  3854  3856  3858  3860  3862  3864  3866  3868  3870  3872  3874  3876  3878  3880  3882  3884  3886  3888  3890  3892  3894  3896  3898  3900"
420 PRINT "  3900  3902  3904  3906  3908  3910  3912  3914  3916  3918  3920  3922  3924  3926  3928  3930  3932  3934  3936  3938  3940  3942  3944  3946  3948  3950  3952  3954  3956  3958  3960  3962  3964  3966  3968  3970  3972  3974  3976  3978  3980  3982  3984  3986  3988  3990  3992  3994  3996  3998  4000"

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Programming

**A game that
will teach
the children**

David Newsham offers some tips on how to get to primary school without a hitch.

Looking through the advertisements of the 100 other firms magazine, one might be led to believe that the 1981 is like more than a robot game machine. Yes, of course, only introduced the machine of the 1981.

Although the business applications of the MRP are very broad, the JMI implementation failed to collect in the

kind of education. The frustration that many school children have for video games can be exploited to provide a powerful educational tool. This new paradigm of education given in the child's world is started at primary school.

Participants of the program recognize that the parents, or school teachers, deliver lessons which are aimed by the child. The results are held in a child file, which can be shared with the teachers for review.

For those interested in different methods of filing data, you might also try using the "Purge" tool to remove records.

[illegible]

The price is given a randomly selected agent from the data set, and in the report issued, it is added to the data series of

the person. The principle is replace each object in turn with one of the items in your shopping list.

The duct is the HESCOTRAPHEN OF the ear. When the child sneezes or coughs, the duct is replaced by the valve. If the child gets that same bug, then another word is not needed, if the word is wrong, the child gets another try.

Type of the program is listed, then the When all the words have been entered press "1" and save the program and data on tape.

The game is useful in helping the child recognize and learn words. The program can be used over several years of the child's education.

It's really smart to know I should be looking for ways to help that child with elementary arithmetic.

100

1000

Spectrum

Use all your pixel power at random

Malcolm Davies presents three programs to create moving patterns on the screen.

These two pattern programs show off the Spectrum to the limits of fill colour resolution and will make attractive additions to your library of demonstration programs. Both programs run in a clever manner — the screen fills, line by line, with what look like multi-coloured bar codes (vertical stripes) and white ones on your breakfast cereal packets until the screen is filled like a colourful patchwork quilt.

The programs make use of the user-defined graphics feature of the Spectrum. It randomly accesses the computer char-

acter codes and uses the binary notation to switch each pixel on or off in the character block, each row being identical. A colour ink is chosen at random and the graphic character default moved to the next available unit position. A new character code is chosen at random, another user-defined graphic character created and the process repeated until the screen is full.

A 'The colour' instruction '90 lines 80' prevents the end of program message appearing and speeds the pattern — and so the program has to be stopped using the 'break' and 'stop' keys.

The second program is identical in most respects to the first, except that the lower half of the program character is the inverse of the upper half. This effectively doubles the number of horizontal lines on the screen and so gives a finer pattern. I will spare you with the fun of making the pattern even finer.

Another alternative would be to define a limited number of graphic characters and

to repeat them in a methodical manner to produce a repeating pattern. This could be developed by home-weaving or tapestry enthusiasts to design less instant designs.

The third program develops an idea in the Spectrum Manual (Chapter 15). It provides a full screen scrolling display of the columns of differing coloured bars.

Consequently, to relieve the monotony, the border colour changes and the whole screen starts again. The performance will greatly irritate your patience and you may escape from the program simply by using the 'break' and 'stop' keys in the usual way.

Now that lines 15 and 1040 ensure that the screen completely scrolls without manual intervention. The two pause statements slow the display so that it is almost impossible to watch. You will note that multiple paper colours are created, but the Spectrum vocabulary saves the programmer from further coding and substitutes its own favourites.



Pattern 1



Pattern 2



Sound & vision



Now drown all
your sorrows.

Reading is a real-time graphics game for the BBC radio where you are a time-traveler, mysteriously whisked around the country to provide spoken questions. An only answer you miserably, just only have to be less than one that mystery answers where there

The Model Model using The Current Model
However, you may prefer the Model-Set to
enter "Hypergraph" if you get into trouble.
Only use this as a last resort. You may
lose yourself up if you use it too many
times.

Figure 1 consists of four bar charts arranged in a 2x2 grid. Each chart represents a different level of agreement with the statement 'The government should do more to protect the environment'. The y-axis for all charts is 'Percentage of respondents' ranging from 0 to 100. The x-axis for each chart is 'Level of agreement' with categories: 'Strongly agree', 'Agree', 'Disagree', and 'Strongly disagree'. The data is as follows:

Level of agreement	Strongly agree	Agree	Disagree	Strongly disagree
Strongly agree	100%	0%	0%	0%
Agree	85%	15%	0%	0%
Disagree	70%	30%	0%	0%
Strongly disagree	55%	45%	0%	0%

[illegible][illegible]

This program was written on a model of
if you want to try it on a model it, change
the following code:

THE UNIVERSITY OF CHICAGO
 5408 S. UNIVERSITY AVE.
 CHICAGO, ILL. 60637
 TEL: 773-936-5000
 FAX: 773-936-5000

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You can share your own favorite Sound or Vision programs with other readers by sending this with expansions to us at *Popular Computing Weekly*.

WILLIAM F. BAKER is a senior lecturer
teaching history, Mathematics, and
Statistics, Saint Louis, MO 63103.

```

1  # Import packages
2  import numpy as np
3  import pandas as pd
4  import matplotlib.pyplot as plt
5  import seaborn as sns
6  import sklearn.preprocessing as preprocessing
7  import sklearn.metrics as metrics
8  import sklearn.model_selection as model_selection
9  import sklearn.linear_model as linear_model
10 import sklearn.svm as svm
11 import sklearn.tree as tree
12 import sklearn.ensemble as ensemble
13 import sklearn.neighbors as neighbors
14 import sklearn.cluster as cluster
15 import sklearn.decomposition as decomposition
16 import sklearn.pipeline as pipeline
17 import sklearn.metrics.pairwise as pairwise
18 import sklearn.metrics.cluster as cluster_metrics
19 import sklearn.metrics.classification as classification_metrics
20 import sklearn.metrics.regression as regression_metrics
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"...the quality of the colour display is excellent." *Popular Computing Weekly.*

"The graphics facilities are great fun." *Personal Computer World.*

"...the Spectrum is way ahead of its competitors." *Your Computer.*

"The world's best personal computer for under £500."

Chris Sinclair

Sinclair ZX Spectrum 16K RAM £125, 48K RAM £175.

The extraordinary new ZX Spectrum - a powerful professional computer in everything but price!

There are two versions - 16K or a really powerful 48K. Both have a full 8-cookies, sound generator, a full-size interlocking keyboard and high-resolution graphics. Plus established Sinclair features such as time-based keyboard entry, syntax checks and import/export codes!

Key features of the Sinclair ZX Spectrum

Full colour - 8 colours plus flashing and emphasis-intensity control.

Sound - 8000Hz sampled with variable pitch and duration.

Massive Files - 16K or 48K.

Full-size moving key keypad - all keys in permanently glowing plastic, with repeat facility on each key.

High resolution - 65000 horizontally x 1024 vertically, each individual addressable for true high-resolution graphics.

ASCII character set - with upper and lower-case characters.

High speed 280 & 540K - 16K or 48K supports via cassette, with 1000K and 1000K for programs and separate data files.

The ZX Printer - available now

The printer offers ZX Spectrum owners the full ASCII character set - including lower case characters and high-resolution graphics.

Printing speeds 90 characters per second, with 32 characters per line and 8 lines per vertical inch.

ZX Microdrive - coming soon

Each Microdrive will hold up to 100K bytes on a single interchangeable microfloppy - with a transfer rate of 10K bytes per second. And you'll be able to connect up 100K ZX Microdrives to your ZX Spectrum - they're available later this year, for around £50.

For more information, please write to: **Sinclair Research Ltd, Runcorn, Cheshire WA7 4EX.**

Qty	Item	Unit	Price	Total
	Sinclair ZX Spectrum			
	16K RAM	125	125.00	
	48K RAM	175	175.00	
	Printer			
	Microdrive			
	Other			
	Subtotal			
	VAT (10%)			
	Total			

PLEASE PRINT - in block capitals (Please print in block capitals)

Name

Address

Postcode

Telephone

Signature

Date

